Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-56. (Canceled)

57. (new) A carbon nanosheet having a thickness of 2 nanometers or less.

58. (new) The carbon nanosheet of claim 57, wherein:

the thickness is 1 nanometer or less; and

the carbon nanosheet comprises one to three graphene layers.

59. (new) The carbon nanosheet of claim 58, wherein the carbon nanosheet comprises a single graphene layer.

60. (new) The carbon nanosheet of claim 57, wherein:

the specific surface area of the carbon nanosheet is between 1000 m^2/g to 2600 m^2/g;

the carbon nanosheet has a height between 100 nm and 8 μm;

the carbon nanosheet is in substantially pure form; and

the carbon nanosheet is a freestanding nanosheet disposed on its edge on a substrate.

61. (new) The carbon nanosheet of claim 57, further comprising a plurality of carbon nanosheets having a thickness of 2 nm or less, wherein the plurality of carbon nanosheets are aligned.

62. (new) A composition comprising a carbon nanoflake having a specific surface area between 1000 m^2/g and 2600 m^2/g.

63. (new) The composition of claim 62, wherein the carbon nanoflake has a thickness of 10 nanometers or less.

64. (new) The composition of claim 63, wherein:

the carbon nanoflake has a thickness of 2 nanometers or less; and

the specific surface area of the carbon nanoflake is between 2000 m^2/g and 2600 m^2/g.

65. (new) A method of making carbon nanoflakes comprising forming the nanoflakes on a substrate using RF-PECVD.

66. (new) The method of claim 65, wherein RF-PECVD is inductively or capacitively coupled.

67. (new) The method of claim 65, further comprising:

increasing the substrate temperature during nucleation phase of carbon nanoflake synthesis to form carbon nanosheets comprising a single graphene layer; and

attaching a grounding electrode to the substrate during a nucleation phase of nanoflake formation on the substrate.

68. (new) The method of claim 65, wherein:

the substrate temperature is between 550 °C and 950 °C;

the PECVD chamber pressure is between 50 mTorr and 200 mTorr; and

PECVD plasma power is equal to or greater than 700 W.

69. (new) The method of claim 65, wherein the CVD source gas comprises methane or acetylene, such that the CVD source gas contains a methane to hydrogen ratio between 0.05:99.95 and 100:0, or an acetylene to hydrogen ratio between 0.05:99.95 and 60:40.

70. (new) A method of making carbon nanosheets, comprising:

forming the nanosheets on a substrate; and

increasing the substrate temperature during a nucleation phase of carbon nanosheet formation.

71. (new) The method of claim 70, wherein inductively or capacitively coupled RF-PECVD is used to form the nanosheets.

72. (new) The method of claim 70, further comprising attaching a grounding electrode to the substrate during a nucleation phase of nanoflake formation on the substrate.

73. (new) The method of claim 70, wherein:

the substrate temperature is between 550 °C and 950 °C;

the PECVD chamber pressure is between 50 mTorr and 200 mTorr; and

PECVD plasma power is equal to or greater than 700 W.

74. (new) The method of claim 70, wherein the CVD source gas comprises methane or acetylene, such that the CVD source gas contains a methane to hydrogen ratio between 0.05:99.95 and 100:0, or an acetylene to hydrogen ratio between 0.05:99.95 and 60:40.

75. (new) An article comprising the carbon nanosheet of claim 57, wherein the article is selected from a group consisting of a field emitter, a catalyst support, a hydrogen storage device, a sensor, a blackbody absorber, a composite material, and a coating.

76. (new) An article comprising the carbon nanosheet of claim 62, wherein the article is selected from a group consisting of a field emitter, a catalyst support, a hydrogen storage device, a sensor, a blackbody absorber, a composite material, and a coating.

77. (new) A method of making coated carbon nanoflakes, comprising:

providing carbon nanoflakes coated with a metal coating; and

reacting the nanoflakes and the coating to convert the metal coating to a metal carbide coating.

78. (new) The method of claim 77, wherein:

the step of reacting comprises heating the coated nanoflakes to react the metal with carbon in the nanoflakes;

the nanoflakes comprise carbon nanosheets having a thickness of 2 nm or less; and the metal coating comprises a Zr coating.